

**WHAT IS CLAIMED IS:**

1. An adhesive comprising an amorphous polyolefin and a selectively hydrogenated block copolymer having an S block and an E or E<sub>1</sub> block and having the general formula:

5 S-E-S, (S-E<sub>1</sub>)<sub>n</sub>, (S-E<sub>1</sub>)<sub>n</sub>S, (S-E<sub>1</sub>)<sub>n</sub>X

or mixtures thereof, wherein:

(a) prior to hydrogenation the S block is a polystyrene block;

10 (b) prior to hydrogenation the E block is a polydiene block, selected from the group consisting of polybutadiene, polyisoprene and mixtures thereof, having a molecular weight of from 40,000 to 120,000 daltons;

(c) prior to hydrogenation the E<sub>1</sub> block is a polydiene block, selected from the group consisting of polybutadiene, polyisoprene and mixtures thereof, having a molecular weight of from 20,000 to 60,000 daltons;

(d) n is an integer having a value of 2 to 6 and X is a coupling agent residue;

15 (e) the styrene content of the block copolymer is from 10 percent to 40 weight percent;

(f) the vinyl content of the polydiene block prior to hydrogenation is from 72 to 90 mole percent;

20 (g) the block copolymer includes less than 25 weight percent lower molecular weight units having the general formula:



wherein S, E and E<sub>1</sub> are as already defined;

25 (h) subsequent to hydrogenation about 0-10% of the styrene double bonds have been hydrogenated and at least 80% of the conjugated diene double bonds have been hydrogenated; and

(i) the molecular weight of each of the S blocks is from 4,000 to 12,000 daltons.

2. The adhesive of Claim 1 wherein the styrene content of the block copolymer is about 20 weight percent.

5 3. The adhesive of Claim 1 wherein the vinyl content of the polydiene block prior to hydrogenation is from 73 to 85 mole percent.

4. The adhesive of Claim 3 wherein the vinyl content of the polydiene block prior to hydrogenation is from 76 to 78 mole percent.

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5. The adhesive of Claim 1 wherein the E block is a polybutadiene having a molecular weight of from 45,000 to 60,000 daltons, or the E<sub>1</sub> block is two or more coupled polybutadiene blocks, each of the polybutadiene blocks, prior to being coupled, having a molecular weight of from 22,500 to 30,000 daltons.

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6. The adhesive of Claim 1 wherein the E or E<sub>1</sub> block has a degree of hydrogenation greater than 90%.

7. The adhesive of Claim 1 wherein the block copolymer has a melt index at 20 230°C and a 2.16 kg weight of from about 10 to about 100 grams/10 minutes determined according to ASTM 1238D.

8. The adhesive of Claim 1 wherein the amorphous polyolefin is selected from the group consisting of homopolymers, copolymers, and terpolymers of C<sub>2</sub>-C<sub>8</sub> alpha-olefins, and mixtures thereof.

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9. The adhesive of claim 8 wherein the amorphous polyolefin is a copolymer of propylene and 1-butene or a terpolymer also having ethylene, and having a viscosity of from about 400 cps to about 8500 cps at 190°C and a softening point of from about 95°C to about 125°C.

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10. The adhesive of claim 8 wherein the amorphous polyolefin is a propylene/ethylene copolymer having a viscosity of from about 400 cps to about 8500 cps at 190°C and a softening point of from about 125°C to about 165°C.

10 11. The adhesive of claim 8 wherein the amorphous polyolefin is a blend of homopolypropylene and propylene/ethylene copolymer having a viscosity of from about 400 cps to about 8500 cps at 190°C and a softening point of from about 125°C to about 165°C.

15 12. The adhesive of Claim 8 wherein the amorphous polyolefin is polymerized in a process employing a catalyst selected from the group consisting of Ziegler-Natta catalysts, metallocene catalysts, vanadium catalysts, and mixtures thereof.

20 13. The adhesive of Claim 8 wherein the amorphous polyolefin has a density of from 0.85 to about 0.90 g/cc at 25°C.

14. The adhesive of Claim 1 wherein the amorphous polyolefin has a molecular weight distribution (Mw/Mn) of from about 2 to about 5.

25 15. The adhesive of Claim 1 wherein the amorphous polyolefin is present in a weight percent of from about 99 percent to about 45 percent and the selectively

hydrogenated block copolymer is present in a weight percent of from about 1 percent to about 55 percent.

16. The adhesive of Claim 15 wherein the amorphous polyolefin is present in a weight percent of from about 95 percent to about 50 percent and the selectively hydrogenated block copolymer is present in a weight percent of from about 5 percent to about 50 percent.

17. The adhesive of Claim 1 additionally comprising a tackifying resin.

18. The adhesive of Claim 17 wherein the tackifying resin is selected from the group consisting of aliphatic petroleum resins and the hydrogenated derivatives thereof, aromatic petroleum resins and the hydrogenated derivatives thereof, aliphatic/aromatic petroleum resins and the hydrogenated derivatives thereof, hydrocarbon resins, styrene resins, alpha-methyl styrene resins, polyterpene resins, copolymers and terpolymers of natural terpene resins, pentaerythritol esters of wood, gum, and tall-oil rosins, glycerol esters of wood, gum, and tall-oil rosins, mixed esters of rosins and mixtures thereof.

19. The adhesive of Claim 17 wherein the tackifying resin is present in a weight percent of from 10 to 80 weight percent.

20. The adhesive of Claim 19 wherein the tackifying resin is present in a weight percent of from 30 to 55 weight percent.

21. The adhesive of Claim 1 additionally comprising an oil.

22. The adhesive of Claim 21 wherein the oil is selected from the group consisting of mineral oils, naphthenic oils, paraffinic oils, and low molecular weight liquid polyolefin polymers.

5 23. The adhesive of Claim 21 wherein the oil is present at a weight percent of from about 1 to about 30 weight percent.

24. The adhesive of Claim 17 additionally comprising an oil.

10 25. The adhesive of Claim 24 wherein the oil is selected from the group consisting of mineral oils, naphthenic oils, paraffinic oils, and low molecular weight liquid polyolefin polymers.

15 26. The adhesive of Claim 25 wherein the oil is present at a weight percent of from about 1 to about 30 weight percent.

27. An article of manufacture comprising a substrate and adherent thereto an adhesive of Claim 1.

20 28. The article of manufacture of Claim 27 wherein the article of manufacture is selected from the group consisting of: disposable diapers; sanitary napkins; tampons; pant liners; adult incontinence pads; coverstock for feminine hygiene products; surgical and dental sponges; bandages; patient underpads; wipes; domestic wipes; industrial wipes; packaging; medical tray pads; fenestration drapes;  
25 filters; spill control materials; waste management materials; protective articles; operating gowns; mortuary pads; cable wrap; food tray pads; food preservation

articles; seed germination pads; household pet litter; roofing materials; automotive trim; furniture; bedding; clothing; and soil modifiers.

29. The article of manufacture of Claim 27 wherein the article of manufacture is a  
5 magazine or book binding.

30. The article of manufacture of Claim 27 wherein the adhesive is a hot-melt adhesive, tacky adhesive or a pressure sensitive adhesive.